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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,403	07/29/2003	Alain Vallee	082177-0318737	3986

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EXAMINER	
ALEJANDRO, RAYMOND	
ART UNIT	**PAPER NUMBER**
1745	

DATE MAILED: 08/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/628,403	VALLEE ET AL.	
	Examiner	Art Unit	
	Raymond Alejandro	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 July 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07//29/03* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The following document is being provided in reply to applicant's communication dated 07/12/06. Applicant has overcome most of the objections, the 35 USC 112 rejection, the double patenting rejection and the rejections under section 102. Refer to the abovementioned amendment for specific details on applicant's rebuttal arguments and remarks. With respect to the double patenting rejection, applicant filed a terminal disclaimer to obviate it. However, the present claims are finally rejected as seen hereunder and for the reasons of record:

Election/Restrictions (Claim Disposition)

1. Claims 14 and 16-17 have been cancelled.

Specification

2. The use of the trademarks "MATRIMID XU5218", "ULTEM 1000O"; "LaRC-CP1"; "LaRC-CP2"; "LaRC-Si"; :Kynar Flex"; and "Celgard 3401" have been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Note: applicant did not address this in the foregoing communication.

Claim Objections

3. Claims 1-2 are objected to because of the following informalities: all abbreviations (i.e. "PEA") should be changed (or deleted) to its standard or general nomenclature or terminology. Appropriate correction is required.

Double Patenting

4. A terminal disclaimer obviating the previously stated double patenting rejection was submitted by the applicant.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-13 and 15 are rejected under 35 U.S.C. 102(e) as anticipated by Gustafson et al 6451480.

The present claims are directed t a battery wherein the disclosed inventive concept comprises the specific electrolyte separator including polyimide.

Concerning claim 1:

Gustafson et al disclose a battery comprising an anode, a cathode and a separator film disposed between each anode and each cathode (ABSTRACT/CLAIM 1/FIGURE 1).

Figure 1 below illustrates the anode 20, the separator 40, the cathode 30 and the liquid electrolyte 50.

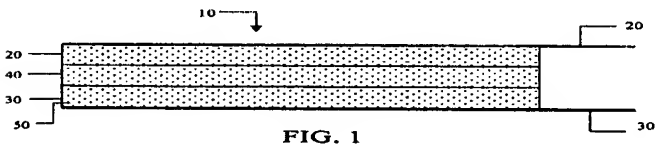

FIG. 1

In particular, Gustafson et al disclose that the cathode comprises a metal oxide, an electronic conductive filler and an ionically conductive and electrochemically active cathode solid electrolyte polyimide binder (COL 3, lines 48-61). In another embodiment, the anode is ionically conductive and electrochemically active including solid electrolyte polyimide binder (COL 4, lines 6-20). It is disclosed that the ionically conductive and electrochemically active anode may be combined with any cathode, separator film and liquid electrolyte known to those skilled in the art or it may be used with the ionically conductive and electrochemically active cathode to form a liquid electrolyte lithium-ions battery (COL 4, lines 25-31). Disclosed is that the solid electrolyte polyimide binder is soluble in any polar solvent including NMP and gamma-butyrolactone (COL 3, lines 60-67/ COL 4, lines 15-25).

The following Li-salts are disclosed (COL 5, lines 62-65/ COL 8, lines 1-5):

weight of a lithium salt. Preferably, the lithium salt is selected from the group consisting of: LiCl, LiBr, LiI, $Li(ClO_4)$, $Li(BF_4)$, $Li(PF_6)$, $Li(AsF_6)$, $Li(CH_3CO_2)$, $Li(CF_3SO_3)$, $Li(CF_3SO_2)_2N$, $Li(CF_3SO_2)_3$, $Li(CF_3CO_2)$, $Li(B(C_6H_5Li(NO_3)$. Most preferably, the lithium salt is $Li(PF_6)$. The lithium salt provides ionic conductivity to the cathode.

Disclosed is that the cathode contains from about 27 % by weight to about 35 % by weight of a polar solvent such as NMP or gamma-butyrolactone (COL 5, lines 35-45). **EXAMPLE 1** shows the use of NMP solvent in an amount of 27-35 % by weight (Example 1; COL 9, lines 58-65). *Thus, Gustafson et al show with sufficient specificity the use of a solvent*

within the claimed weight percent range. It is further noted that since both the anode and the cathode contains the solid electrolyte polyimide binder, the interfaces of the anode-separator and the cathode-separator satisfy the claimed requirement of furnishing the electrolyte separator comprising the polyimide and the specific amount of solvent.

Examiner's note: *as to the specific preamble reciting "for a PEA", it is pointed out that the preamble refers to intended use. That is, the claim is directed to a battery per se and the preamble phrase "for a PEA" is only a statement of ultimate intended utility.*

As to claim 2:

Examiner's note: *as to the specific preamble reciting "for a PEA" or "the specific portable electronic appliance", it is pointed out that they refers to intended use. That is, the claim is directed to a battery per se and the preamble phrase "for a PEA" and/or "the specific portable electronic appliance" is only a statement of ultimate intended utility.*

Concerning claims 3-4 and 9:

Disclosed is that the cathode contains from about 27 % by weight to about 35 % by weight of a polar solvent such as NMP or gamma-butyrolactone (COL 5, lines 35-45). **EXAMPLE 1** shows the use of NMP solvent in an amount of 27-35 % by weight (Example 1; COL 9, lines 58-65).

As for claims 5-6:

EXAMPLE 2 shows a battery prepared using the specific electrodes and electrolyte solutions and battery components of Example 1 (See EXAMPLE 2). *Thus, the specific battery weight is an inherent characteristic of the exemplified battery.*

Concerning claims 7-8:

Gustafson et al disclose an anode comprising intercalation material and a current collector (COL 4, lines 7-11).

Concerning claims 10-13:

Gustafson et al disclose a cathode comprising a metal oxide, an electronic conductive filler; and the ionically conductive solid electrolyte polyimide binder (COL 5, lines 19-25). The metal oxides include $LiCoO_2$, $LiMnO_2$; $LiNiO_2$; V_6O_3; V_2P_5 and $LiMn_2O_4$ (COL 6, lines 22-25).

Concerning claim 15:

The following Li-salts are disclosed (COL 5, lines 62-65/ COL 8, lines 1-5):

> weight of a lithium salt. Preferably, the lithium salt is selected from the group consisting of: LiCl, LiBr, LiI, $Li(ClO_4)$, $Li(BF_4)$, $Li(PF_6)$, $Li(AsF_6)$, $Li(CH_3CO_2)$, $Li(CF_3SO_3)$, $Li(CF_3SO_2)_2N$, $Li(CF_3SO_2)_3$, $Li(CF_3CO_2)$, $Li(B(C_6H_5Li(NO_3)$. Most preferably, the lithium salt is $Li(PF_6)$. The lithium salt provides ionic conductivity to the cathode.

Therefore, the claims are anticipated.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. (*At least*) Claims 1-2, 5-6, 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clingempeel 5895731 in view of Gustafson et al 6451480.

The present claims are directed to a battery wherein the disclosed inventive concept comprises the specific electrolyte separator including polyimide.

As to claim 1:

Clingempeel a thin-film lithium battery including a lithium anode; a cathode (ABSTRACT) and a gel electrolyte including a quantity of N-methylpyrrollidone and lithium contained within a polyimide matrix (ABSTRACT). Specifically, a polyimide cell-separator sheet is constructed by mixing polyimide with NMP in a 9:1 ratio (COL 5, lines 58-62).

Examiner's note: *as to the specific preamble reciting "for a PEA", it is pointed out that the preamble refers to intended use. That is, the claim is directed to a battery per se and the preamble phrase "for a PEA" is only a statement of ultimate intended utility.*

As to claim 2:

Clingempeel discloses lithium batteries (TITLE/COL 1, lines 5-8) for computer applications (COL 1, lines 10-15).

Examiner's note: *as to the specific preamble reciting "for a PEA", it is pointed out that the preamble refers to intended use. That is, the claim is directed to a battery per se and the preamble phrase "for a PEA" is only a statement of ultimate intended utility.*

As to claims 5-6:

Clingempeel teaches thin-film lithium batteries (TITLE). *Thus, the specific battery weight is an inherent characteristic of the exemplified battery.*

As to claim 9:

N-methylpyrrollidone is used as a solvent (ABSTRACT/ COL 5, lines 58-62).

Clingempeel describes a battery according to the aforementioned aspects. However, the preceding prior art of record fails to expressly disclose the specific alkali metal salt.

As to claims 1 and 15:

Gustafson et al disclose a battery comprising an anode, a cathode and a separator film disposed between each anode and each cathode (ABSTRACT/CLAIM 1/FIGURE 1). Gustafson et al disclose that the cathode comprises a metal oxide, an electronic conductive filler and an ionically conductive and electrochemically active cathode solid electrolyte polyimide binder (COL 3, lines 48-61).

The following Li-salts are disclosed (COL 5, lines 62-65/ COL 8, lines 1-5):

> weight of a lithium salt. Preferably, the lithium salt is selected from the group consisting of: LiCl, LiBr, LiI, $Li(ClO_4)$, $Li(BF_4)$, $Li(PF_6)$, $Li(AsF_6)$, $Li(CH_3CO_2)$, $Li(CF_3SO_3)$, $Li(CF_3SO_2)_2N$, $Li(CF_3SO_2)_3$, $Li(CF_3CO_2)$, $Li(B(C_6H_5Li(NO_3)$. Most preferably, the lithium salt is $Li(PF_6)$. The lithium salt provides ionic conductivity to the cathode.

In view of the above, it would have been obvious to a person possessing a level of ordinary skill in the art at the time the invention was made to use the specific alkali metal salt of Gustafson et al in the battery of Clingempeel as Gustafson et al teaches that polyimide-based lithium batteries specifically containing the specific alkali metal salt exhibit enhanced overall performance by being less sensitive to overcharging and discharging than prior art batteries,

insuring satisfactory ion conductivity, and having excellent high temperature stability and good cohesive properties within the electrolyte film layers. Moreover, the these two references are pertinent to each other as they both address the same problem of providing suitable electrolytic systems for polyimide-based lithium batteries.

Response to Arguments

10. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection. See item 9 above.

11. Applicant's arguments filed 07/12/06 against the rejection based upon Gustafson et al have been fully considered but they are not persuasive.

12. Applicant has argued that "*This argument, as best understood by the applicants in view of the lack of express disclosure of Gustafson'480, must be an inherency argument – that the solvent weight percentage in the electrolyte would necessarily result from construction of Gustafson's anode, cathode and separator stack. However, neither the Examiner nor one skilled in the art, based on the disclosure of Gustafson'480, can be positively certain that the claimed weight percentages of solvent (10-40, 15-30 %, and 20-25%) would be necessarily present in the electrolyte. At best, it might be possible that these weight percentages would be present, but it is not a certainty, which is required in a rejection based on inherency*". In response, the examiner simply contends that applicant bears the burden of proof. *In re Fitzgerald, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980) (quoting In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977))*. Since PTO does not have proper equipment to carry out the analytical tests, the burden is shifted to the applicant to furnish objective evidence demonstrating the claimed

compositional range is necessarily different from the compositional range of prior art of record, and further that the difference is unobvious; and that Gustafson'480 does not show the claimed range with sufficient specificity, *Ex parte Lee 31 USPQ2d 1105 (Bd. Pat. App. & Inter. 1993)*.

13. Moreover, applicant clearly has stated the following: "*At best, it might be possible that these weight percentages would be present, but it is not a certainty, which is required in a rejection based on inherency*". This statement is further evidence that applicant is not completely sure that Gustafson'480 does not disclose the specifically claimed range. Since applicant has taken such an unusual position, one that give a certain degree of probability/possibility, it follows that applicant bears the burden to proof otherwise.

Conclusion

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. See item 9 above. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (571) 272-1282. The examiner can normally be reached on Monday-Thursday (8:00 am - 6:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Raymond Alejandro
Primary Examiner
Art Unit 1745